METHOD OF FORMING INSULATING THIN FILM

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Abstract

PURPOSE:To form a dense insulating film of good quality having tight adhesion to the underlay and good step coverage by an atomic layer deposition process in which an object is exposed to molecular flows of different material gases several times.
CONSTITUTION:A gate electrode G of titanium film 11 is formed on a glass substrate 1. A layer is formed under a gate bus line GB, above which an aluminum film 12 is formed. A thin Al2O3 film 21 is formed under a gate insulating film 2 and an inner insulating film 8 by an ALE process. A silicon nitride film 22 is formed on the thin film 21 by P-CVD. An amorphous silicon layer 3, as the active semiconductor layer of a thin-film transistor, is continuously formed by P-CVD, and then there are formed an n<+> amorphous silicon layer 4 as a contact layer, and a channel protecting film 6 of SiO2. Titanium film 5 is formed to make a source electrode S, a drain electrode D, and a drain bus line DB. A display electrode E of ITO film is formed, and finally the substrate is entirely covered with surface protecting film 7 of Al2O3 by an ALE process.